



Australian Government

AHCIRG334 Operate and maintain gravity fed irrigation systems

Release: 1

AHCIRG334 Operate and maintain gravity fed irrigation systems

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Application

This unit of competency covers the skills and knowledge required to install, operate and maintain surface irrigation structures and components.

It applies to individuals who take responsibility for own work and for the quality of the work of others. They use discretion and judgement in the selection, allocation and use of available resources. All work is carried out to comply with workplace procedures.

No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Irrigation (IRG)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Install surface irrigation systems	1.1 Check water supply is compatible with system specifications 1.2 Interpret plan, mark out structures and peg earthworks 1.3 Prepare and maintain beds, diversion and conveyancing structures 1.4 Install diversion and conveyancing structures, channels and beds 1.5 Prepare bed surface with roto-buck 1.6 Test structures for configuration, flow rates and capacity
2. Complete water measurement and	2.1 Install water measurement structures 2.2 Install channels and tail water storages

Element	Performance criteria
tail-water works	2.3 Install pumping equipment, lines and filters 2.4 Confirm that the system configuration and capacity matches the installation plan 2.5 Finish off earthworks and structures
3. Operate pumps and siphons	3.1 Prime pumps and open or close valves and controls 3.2 Position and set up pipes, system equipment and outlets 3.3 Prime and start siphons and other delivery mechanisms 3.4 Implement start up sequence and slowly build up water levels and pressure 3.5 Check pressure at the head-works and control valves 3.6 Distribute water evenly to the targeted areas with minimal wastage and run-off 3.7 Irrigate area and observe time lag between shut down and end of watering to minimise run-off and deep percolation
4. Measure and interpret water levels, flow rates and volume of water used	4.1 Monitor and maintain head water levels 4.2 Confirm that all water outlets are operating correctly 4.3 Replace or clear blocked inlets and outlets 4.4 Measure and record flow rates and water usage 4.5 Implement irrigation changes as required
5. Monitor drainage and tail-water systems	5.1 Monitor water intake, conveyance and distribution, drainage and tail-water 5.2 Check water reuse systems for clearance and freedom from weeds 5.3 Monitor pumps, if used, during operation, clear rubbish from outlets and backflush pump
6. Inspect and maintain a surface irrigation system	6.1 Record damage and blockages with contaminants by damage type, location and the section of the system affected 6.2 Record and report damaged or faulty pumps, valves, electrical components and computer control systems and take action to effect repairs 6.3 Service water measuring, diversion and conveyancing, and distribution structures 6.4 Carry out vegetation control to keep all system components clear 6.5 Undertake servicing and repair of mechanical equipment

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

New unit - no equivalent.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCIRG334 Operate and maintain gravity fed irrigation systems

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Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence that they can:

- adjust and monitor check valves
- build and maintain irrigation structures, channels and beds
- carry out running repairs on irrigation delivery and drainage systems
- carry out shut down procedures, clean equipment and dispose of waste
- check pressure at the head works and control valves
- check the serviceability of siphons
- identify variations in water flow and distribution
- inspect irrigation systems
- install pumps and pipelines
- measure water usage
- perform system commissioning tasks
- prepare irrigation beds
- remove and replace gates, slides and doors
- remove and replace valves and filters
- start and move siphons and spiles and check flow
- start up the system
- undertake minor repairs of equipment
- use roto-buck for bed preparation

Knowledge Evidence

The candidate must demonstrate knowledge of:

- principles and practices of surface irrigation
- behaviour of water on varying terrain and soil types
- calculations for installing surface irrigation systems

- characteristics and operation of components
- components of a surface irrigation system
- environmental impacts of surface irrigation installation
- soil characteristics
- soil water retention testing techniques
- water quality and water filtration techniques
- common operational and maintenance problems
- common operational problems
- environmental impacts of irrigation maintenance
- maintenance requirements – routine and end of season
- surface irrigation system components
- weed control methods

Assessment Conditions

Assessors must satisfy current standards for RTOs.

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